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| 10/567,014 | 02/02/2006 | Makoto Ono | 081040 | 9421 |

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| EXAMINER | |
|---|---|
| COLEMAN, RYAN L | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1714 | |

| NOTIFICATION DATE | DELIVERY MODE |
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| 06/03/2010 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/567,014 | ONO ET AL. | |
| | Examiner | Art Unit | |
| | RYAN COLEMAN | 1714 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *17 May 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1 and 4-12* is/are pending in the application.

4a) Of the above claim(s) *7-12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 4-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 17, 2010 has been entered. Claims 1 and 4-12 are pending, and claims 7-12 have been withdrawn from consideration.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application Publication No. 1336436 to Sugimoto in view of U.S. Patent Application Publication No. 2005/0199274 by Abbott in view of U.S. Patent No. 5,353,821 to Franklin in view of U.S. Patent No. 2003/0205246 by Christman et al. (hereafter referred to as "Christman").

6. With regard to claim 1, Sugimoto teaches a method for cleaning a drainage pipe in a transit vehicle (Par. 0001; Par. 0002; Par. 0007; Par. 0008; Figure 1). In Sugimoto's method, a cleaning liquid reservoir (item 20 in Figure 1; reads on *cleaning fluid tank*) is connected to the downstream end of a drainage pipe (item 91 in Figure 1) through a feed pipe (item 30 in Figure 1; reads on *fluid delivery line*), and the cleaning liquid reservoir is connected to the upstream end of the drainage pipe through a suction pipe (reads on *fluid drain line*; Par. 0007 Par. 0008; Par. 0035). Negative pressure is applied to the cleaning liquid reservoir, feed pipe, drainage pipe, and suction pipe (Par. 0008; Par. 0035; Figure 1), and cleaning liquid from the cleaning liquid reservoir is

reverse-flushed through the drainage pipe after passing through feed pipe. Sugimoto teaches using pumps (items 32 in Figure 1) that are connected to the feed pipe in order to pump the cleaning liquid from the cleaning liquid reservoir to the drainage pipe (Par. 0030 and 0051). The used cleaning liquid is returned to the cleaning liquid reservoir through the suction pipe (Par. 0008). Sugimoto teaches monitoring the cleaning fluid pressure near the drainage pipe during the cleaning process, and Sugimoto teaches initiating a cleaning liquid recovery cycle when the pressure detector (item 41 in Figure 1) near the drainage pipe detects an excessive pressure (Par. 0034; Par. 0057). In the recovery cycle, a valve on the suction pipe is opened in order to expose the cleaning liquid in the drainage pipe to the pressure of the atmosphere and an emergency valve (item 45 in Figure 1) is opened such that cleaning liquid returns to the reservoir tank by flowing through a feed-back pipe (item 40 in Figure 1; reads on *return line*) that is connected to the feed pipe and the reservoir tank (Par. 0011; Par. 0012; Par. 0034; Par. 0057; Par. 0058). As discussed, Sugimoto teaches performing a fluid recovery cycle when a pressure sensor detects that the pressure of fluid near the drainpipe is too large (Par. 0034; Par. 0057).

7. Sugimoto does not teach that when the pressure sensor detects excessive pressure near the drainpipe and a cleaning liquid recovery cycle is initiated, the pumps that function to pump cleaning liquid from the cleaning liquid reservoir to the drainage pipe are stopped.

8. Abbott teaches a method of cleaning pipes in order to remove undesired deposits from the inners surfaces of the pipes (Par. 0001, 0004, 0014, 0016, 0017, 0021, 0022,

0026, and 0027). Abbott teaches having a tank (item 104 in Figure 1) into which cleaning liquid is pumped such that cleaning liquid within the tank can then be distributed to the various pipes that are to be cleaned (Par. 0017, 0021, 0022, and 0027). Abbott teaches using a pump (item 101 in Figure 1) and a pump motor (item 102 in Figure 1) to pump cleaning liquid from a cleaning liquid reservoir (item 113 in Figure 1) to the tank (Par. 0017, 0026, and 0027). Abbott teaches that when a pressure sensor (item 140 in Figure 1) detects that the pressure within the tank has reached the upper threshold, the pump 101 is stopped such that cleaning liquid is no longer pumped to the tank and the tank's pressure does not exceed the upper threshold (Par. 0020 and 0027).

9. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Sugimoto such that when the pressure sensor detects excessive pressure near the drainage pipe, the pumps (items 32 in Figure 1) that supply cleaning liquid to the drainage pipe are stopped. Abbott teaches that a pressure sensor can communicate with a cleaning liquid supply pump such that the pump can be stopped when the pump is supplying cleaning liquid to an area that has reached its pressure threshold, and the motivation for performing the modification would be to prevent the pressure near the drainage pipe from reaching an even higher pressure than the excessive pressure that caused the liquid recovery cycle to be initiated. As a further motivation for modifying the method Sugimoto such that the pumps that supply cleaning liquid to the drainage pipe are stopped when the pressure sensor detects excessive pressure near the drainage pipe, it would be desired to stop the pumps from

providing cleaning liquid to the drainage pipe when the excessive pressure is detected because while the fluid recovery cycle is being performed, additional cleaning liquid is not required and stopping the pumps from supplying cleaning liquid would prevent the unnecessary supply of cleaning liquid and the unnecessary operation of the pumps.

10. The combination of Sugimoto in view of Abbott does not explicitly teach that opening the valve on the suction pipe in order to expose the drainage pipe to atmospheric air and opening the emergency valve on the feed-back pipe causes cleaning fluid from the drainage pipe to flow through the feed-back pipe such that the cleaning liquid returns to the reservoir tank. However, in the method of Sugimoto in view of Abbott, when the valve on the suction pipe is opened and the emergency valve on the feed-back pipe is opened, the cleaning liquid in the drainage pipe has an unobstructed path to enter the feed-back pipe, and since the combination of Sugimoto in view of Abbott teaches performing the same method steps with the same materials as those claimed by applicant, it is expected that in the method of Sugimoto in view of Abbot, the steps of opening the valve on the suction pipe and opening the emergency valve on the feed-back pipe produce the effect of having cleaning liquid from the drainage pipe flow through the feed-back pipe and into the reservoir tank.

11. The combination of Sugimoto in view of Abbott does not explicitly teach that the cleaning process is resumed after the fluid recovery process is performed.

12. Franklin teaches a method of cleaning a drainpipe with aqueous cleaning solution (Col. 1, 9-20; Col. 2, 9-16; Col. 3, line 61 to Col. 4, line 2; Col. 4, 10-19; Col. 5, 19-30). Franklin teaches monitoring the cleaning apparatus, and as taught by Franklin,

when an undesired deviation occurs in the cleaning fluid delivery process, the process is temporarily stopped such that the problem can be corrected (Col. 5, line 63 to Col. 6, line 17). Upon performing the correction process, Franklin teaches resuming the cleaning process in order to continue cleaning the drainpipe (Col. 6, 13-17).

13. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Sugimoto in view of Abbott such that the cleaning process is resumed after the cleaning recovery process has been performed. The motivation for performing the modification was provided by Franklin, who taught resuming a cleaning process after correcting a system malfunction in order to continue the cleaning process, and in the method of Sugimoto in view of Abbott, it would be desirable to continue cleaning the drainpipe in order to fully clean the drainpipe.

14. The combination of Sugimoto in view of Abbott in view of Franklin does not teach terminating operation of the cleaning system after more than a predetermined number of cleaning fluid recovery cycles have been performed.

15. Christman teaches a method of pumping cleaning liquid in an enclosed space in order to clean surfaces within the enclosed space (Par. 0008; Par. 0009; Par. 0036; Par. 0040). Christman teaches performing a drain cycle when a pressure sensor within the enclosed space detects that too much cleaning liquid is present within the space (Par. 0079; Par. 0083), and Christman teaches counting the number of times that the drain cycle is performed (Par. 0084). As taught by Christman, if the number of times the drain cycle is performed exceeds a predetermined value, it is determined that

something is systematically wrong with the apparatus, and the functioning of the apparatus is terminated (Par. 0084; Par. 0085).

16. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Sugimoto in view of Abbott in view of Franklin such that the number of times that the fluid recovery cycle is performed during the continued cleaning process is counted such that when the number of iterations exceeds a predetermined value, the functioning of the cleaning apparatus can be terminated (MPEP 2143, *Rational A*). The motivation for performing the modification was provided by Christman, who taught such a practice allows for the termination of a cleaning apparatus when a systematic problem is likely occurring.

17. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application Publication No. 1336436 to Sugimoto in view of U.S. Patent Application Publication No. 2005/0199274 by Abbott in view of U.S. Patent No. 5,353,821 to Franklin in view of U.S. Patent No. 2003/0205246 by Christman as applied to claim 1 and in further view of U.S. Patent No. 5,895,763 to Edstrand et al. (hereafter referred to as "Edstrand").

18. With regard to claim 4, the combination of Sugimoto in view of Abbott in view of Franklin in view of Christman teaches using flow meters to monitor the flow rate of cleaning liquid through the feed pipe (Par. 0030 of Sugimoto). The combination teaches that the cleaning of the drainage pipe generates gases (Par. 0027 of Sugimoto).

19. The combination of Sugimoto in view of Abbott in view of Franklin in view of Christman does not explicitly teach using the flow meter data to determine the end point of the cleaning process.

20. Edstrand teaches a method of cleaning a pipe that involves flowing cleaning liquid through the pipe (Col. 3, 3-9). The cleaning liquid reacts with the contaminates within the pipe to form gases (Col. 3, 16-18). Flow rate sensors are placed at the inlet and outlet of the pipe (Col. 3, 3-30). Initially, the formed gases cause the pressure at the outlet to be greater than the pressure at the inlet, but after treating the pipe for some amount of time, the two flow rates equalize at a flow rate value, indicating that the gas-forming contaminates have been removed (Col. 3, 3-30). Edstrand teaches terminating the cleaning process when it has been determined that the gas-forming contaminates have been removed (Col. 3, 24-30).

21. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Sugimoto in view of Abbott in view of Franklin in view of Christman such that flow rate sensors monitor the fluid flow rate at the feed pipe near the inlet of the drainage pipe and at the suction pipe near the outlet of the drainage pipe. When there are no longer gases generated by the reaction between the contaminates in the drainage pipe and the cleaning liquid, the flow rate reading at the inlet end of the drainage pipe and the flow rate reading at the outlet end of the drainage pipe would reach an equal flow rate value (reads on *predetermined flow rate*), and the equalization of the two flow rate readings would indicate that the gas-forming contaminates are removed. In this modified method, when it is known that the gas-

forming contaminates have been removed, the user would terminate the process. The motivation for performing the modification was provided by Edstrand, who taught that the flow rate monitoring process could be used to determine when gas-generating contaminates have been removed from a pipe.

22. With regard to claims 5 and 6, the combination of Sugimoto in view of Abbott in view of Franklin in view of Christman in view of Edstrand, as develop thus far, does not teach waiting for a predetermined amount of time to pass before terminating the cleaning process after the fluid flow through the delivery line has reached the equalized flow rate.

23. Sugimoto teaches timing the cleaning process such that the cleaning process is terminated after a predetermined amount of time has elapsed since the beginning of the cleaning process (Par. 0055; Par. 0056). As taught by Sugimoto, waiting for the appropriate amount of time to pass during the cleaning process ensures that scale is completely removed from the drainage pipe (Par. 0056).

24. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Sugimoto in view of Abbott in view of Franklin in view of Christman in view of Edstrand such that upon having the flow rate of the cleaning liquid reach the equalized flow rate vale, the cleaning process is continued until the necessary predetermined amount of time has elapsed since the beginning of the cleaning process. The motivation for performing the modification was provided by Sugimoto, who taught that performing the cleaning process for the necessary

predetermined amount of time since the beginning the cleaning process ensures that the undesired scale is completely removed.

### *Response to Arguments*

25. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN COLEMAN whose telephone number is (571)270-7376. The examiner can normally be reached on Monday-Friday, 9-5.

27. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on (571)272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

28. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RLC/
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